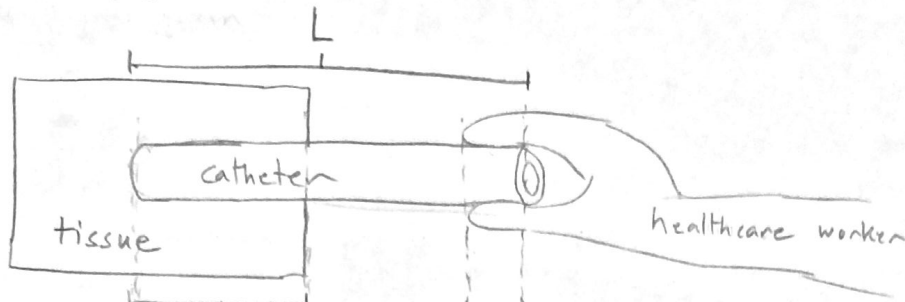
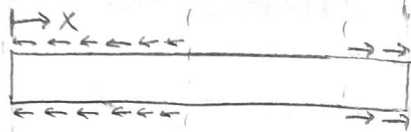


Overall diagram

1/28/2016
BMED 3400

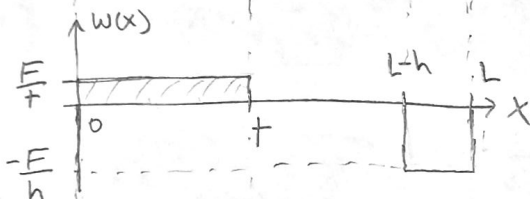


FBD

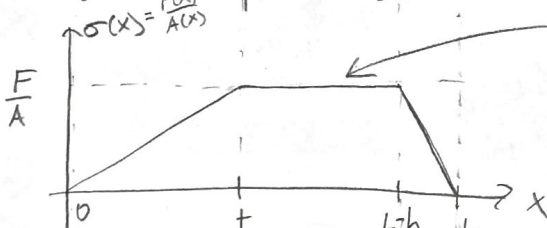
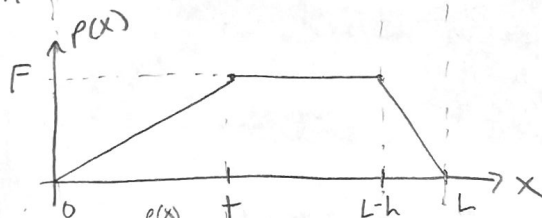


$F =$ total force applied by healthcare worker

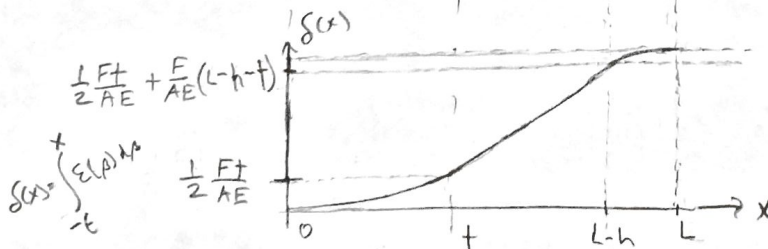
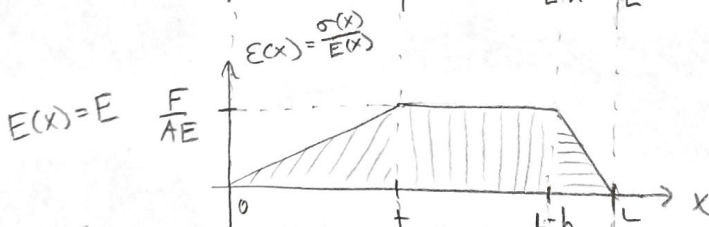
$A(x) = A$



$P(x) = \int_{-x}^x w(x) dx$



Our model predicts the greatest stress will occur between the tissue and the fingers. This is where we would expect the catheter to fail.



triangle rectangle triangle

$\frac{1}{2} \frac{Ft}{AE} + \frac{F}{AE} (L - (t+h)) + \frac{1}{2} \frac{Fh}{AE} = \delta(x=L) = \delta_{tot}$

$\delta_{tot} = \frac{F}{AE} \left(\frac{1}{2}(t+h) + L - (t+h) \right)$

$\delta_{tot} = \frac{F}{AE} \left(L - \frac{1}{2}(t+h) \right)$

histogram of results from experiments

